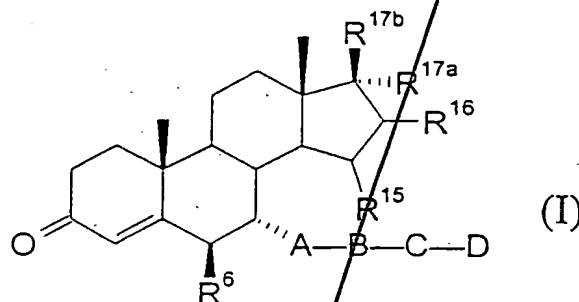


## Claims

1. Testosterone derivatives of general formula I



in which

$R^6$  represents a hydrogen atom, a hydroxy group, a  $C_1$ - $C_{10}$  alkoxy group, a  $C_1$ - $C_{10}$  alkanoyloxy group or a halogen atom,

$R^{15}$  and  $R^{16}$  each are a hydrogen atom or together form a bond,

$R^{17a}$  represents a  $C_1$ - $C_4$  alkyl group, a  $C_2$ - $C_4$  alkynyl group, or a radical of Formula  $C_nF_mH_o$ , whereby  $n = 1, 2, 3$  or  $4$ ,  $m > 1$  and  $m+o=2n+1$ ,

$R^{17b}$  is a hydroxy group, a  $C_1$ - $C_{10}$  alkoxy group or a  $C_1$ - $C_{10}$  alkanoyloxy group,

A is an unbranched  $C_6$ - $C_{13}$  alkylene group,

B represents an oxygen atom, a grouping  $-S(O)_p$ , whereby  $p = 0, 1$  or  $2$ , an iminocarbonyl group  $-C(O)N(Y)-$ , an imino group  $-N(Y)-$ , a carbonylimino group  $-N(Y)C(O)-$ , a sulfonylimino group  $-N(Y)S(O)_2-$ , whereby Y is a hydrogen atom or a  $C_1$ - $C_8$  alkyl group, a sulfonyloxy group  $-OS(O)_2-$ , a dimethylsilyloxy group  $-O-Si(CH_3)_2-$  or

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a carbonylsulfanyl group  $-SC(O)-$ , or B represents a bond between A and C or together with C forms a bond between A and D,

C represents a bond between B and D, or together with B forms a bond between A and D or an unbranched  $C_1-C_6$  alkylene group, a phenylene group, a substituted phenylene group, a five-ring or six-ring heteroarylene group, a substituted five-ring or six-ring heteroarylene group or a five-ring or six-ring heteroarylene group that is condensed with a phenyl ring,

and

D represents a hydrogen atom, a  $C_1-C_4$  alkyl group, a vinyl group, a  $C_1-C_4$  alkoxy group, a  $C_1-C_4$  alkoxycarbonyl group, a bis( $C_1-C_4$  alkoxycarbonyl)methyl group, an acetyl( $C_1-C_4$  alkoxycarbonyl)methyl group, a cyano group, a carboxy group, an azide group, a hydroxy group, a halogen atom or a radical of formula  $C_nF_mH_o$ , whereby  $n = 1, 2, 3$  or  $4$ ,  $m > 1$  and  $m+o=2n+1$ .

2. Testosterone derivatives according to claim 1, characterized in that  $R^{17a}$  represents the methyl group, the ethyl group, the trifluoromethyl group or the pentafluoroethyl group.

3. Testosterone derivatives according to claim 1 or 2, wherein  $R^{17b}$  is the hydroxy group, a  $C_1-C_5$  alkoxy group or a  $C_1-C_3$  alkanoyloxy group.

4. Testosterone derivatives according to claim 3, wherein  $R^{17b}$  is the hydroxy, methoxy, ethoxy or acetyloxy group.

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7. Testosterone derivatives according to one of claims 1 to 6, wherein radical ABCD means 9-hydroxynonyl, 7-(acetylsulfanyl)heptyl or 7-(4-cyanobutoxy)heptyl.

8. Testosterone derivatives according to one of claims 1 to 6, wherein the five-ring- or six-ring-heteroaromatic compounds of radical C are pyrrole, thiophene, imidazole, thiazole, oxazole, triazole, thiadiazole, indole, benzoxazole, benzothiazole, pyridine, or pyrimidine.

9. Testosterone derivatives according to one of claims 1 to 8, wherein they represent the following compounds:

7 $\alpha$ -(9-Chlorononyl)-17 $\alpha$ -methyl-3-oxoandroster-4-en-17 $\beta$ -yl-  
acetate

7 $\alpha$ -(9-Chlorononyl)-17 $\beta$ -hydroxy-17 $\alpha$ -methylandrost-4-en-3-one  
17 $\beta$ -Hydroxy-7 $\alpha$ -(9-iodononyl)-17 $\alpha$ -methylandrost-4-en-3-one  
17 $\beta$ -Hydroxy-7 $\alpha$ -(9-hydroxynonyl)-17 $\alpha$ -methylandrost-4-en-3-one  
7 $\alpha$ -(10-Chlorodecyl)-17 $\beta$ -hydroxy-17 $\alpha$ -methylandrost-4-en-3-one  
17 $\beta$ -Hydroxy-7 $\alpha$ -(11-hydroxyundecyl)-17 $\alpha$ -methylandrost-4-en-3-one

7 $\alpha$ - (11-Bromoundecyl) -17 $\beta$ -hydroxy-17 $\alpha$ -methylandrost-4-en-3-one

17 $\beta$ -Hydroxy-17 $\alpha$ -methyl-7 $\alpha$ -[7-(phenylsulfanyl)heptyl]androst-  
4-en-3-one

17 $\beta$ -Hydroxy-17 $\alpha$ -methyl-7 $\alpha$ -[9-[(4,4,5,5,5-pentafluoropentyl)sulfanyl]nonyl]androst-4-en-3-one

17 $\beta$ -Hydroxy-17 $\alpha$ -methyl-7 $\alpha$ -[9-(phenylsulfanyl)nonyl]androst-4-en-3-one

7 $\alpha$ -[9-[(5-Chloropentyl)sulfanyl]nonyl]-17 $\beta$ -hydroxy-17 $\alpha$ -methylandrost-4-en-3-one

17 $\beta$ -Hydroxy-7 $\alpha$ -[9-[(5-hydroxypentyl)sulfanyl]nonyl]-17 $\alpha$ -methylandrost-4-en-3-one

7 $\alpha$ -(9-Azidononyl)-17 $\beta$ -hydroxy-17 $\alpha$ -methylandrost-4-en-3-one

7 $\alpha$ -[7-(Acetylsulfanyl)heptyl]-17 $\beta$ -hydroxy-17 $\alpha$ -methylandrost-4-en-3-one

17 $\beta$ -Hydroxy-17 $\alpha$ -methyl-7 $\alpha$ -[7-[(4,4,5,5,5-pentafluoropentyl)sulfanyl]heptyl]androst-4-en-3-one

N-[7-(17 $\beta$ -Hydroxy-17 $\alpha$ -methyl-3-oxoandrost-4-en-7 $\alpha$ -yl)heptyl]pentanamide

17 $\beta$ -Hydroxy-17 $\alpha$ -methyl-3-oxoandrost-4-en-7 $\alpha$ -octane nitrile

5-[[7-(17 $\beta$ -Hydroxy-17 $\alpha$ -methyl-3-oxoandrost-4-en-7 $\alpha$ -yl)heptyl]oxy]pentanenitrile

17 $\beta$ -Hydroxy-17 $\alpha$ -methyl-7 $\alpha$ -[9-[(4,4,5,5,5-pentafluoropentyl)sulfinyl]nonyl]androst-4-en-3-one

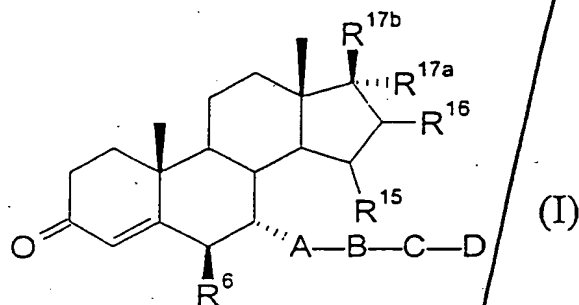
N-[9-(17 $\beta$ -Hydroxy-17 $\alpha$ -methyl-3-oxoandrost-4-en-7 $\alpha$ -yl)nonyl]methanesulfonamide

7 $\alpha$ -(9-Chlorononyl)-6 $\beta$ -hydroxy-17 $\alpha$ -methyl-3-oxoandrost-4-en-17 $\beta$ -yl-acetate

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## 10. Use of the testosterone derivatives of general formula

I



in which

$R^6$  represents a hydrogen atom, a hydroxy group, a  $C_1$ - $C_{10}$  alkoxy group, a  $C_1$ - $C_{10}$  alkanoyloxy group or a halogen atom,

$R^{15}$  and  $R^{16}$  each are a hydrogen atom or together form a bond,

$R^{17a}$  represents a  $C_1$ - $C_4$  alkyl group, a  $C_2$ - $C_4$  alkynyl group, or a radical of Formula  $C_nF_mH_o$ , whereby  $n = 1, 2, 3$  or  $4$ ,  $m > 1$  and  $m+o=2n+1$ ,

$R^{17b}$  is a hydroxy group, a  $C_1$ - $C_{10}$  alkoxy group or a  $C_1$ - $C_{10}$  alkanoyloxy group,

A is an unbranched  $C_6$ - $C_{13}$  alkylene group,

B represents an oxygen atom, a grouping  $-S(O)_p$ , whereby  $p = 0, 1$  or  $2$ , an iminocarbonyl group  $-C(O)N(Y)-$ , an imino group  $-N(Y)-$ , a carbonylimino group  $-N(Y)C(O)-$ , a sulfonylimino group  $-N(Y)S(O)_2-$ , whereby Y is a hydrogen atom or a  $C_1$ - $C_3$  alkyl group, a sulfonyloxy group  $-OS(O)_2-$ , a dimethylsilyloxy group  $-O-Si(CH_3)_2-$  or a carbonylsulfanyl group  $-SC(O)-$ , or B represents a

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bond between A and C or together with C forms a bond between A and D,

C represents a bond between B and D, or together with B forms a bond between A and D or an unbranched  $C_1-C_6$  alkylene group, a phenylene group, a substituted phenylene group, a five-ring or six-ring heteroarylene group, a substituted five-ring or six-ring heteroarylene group or a five-ring or six-ring heteroarylene group that is condensed with a phenyl ring,

and

D represents a hydrogen atom, a  $C_1-C_4$  alkyl group, a vinyl group, a  $C_1-C_4$  alkoxy group, a  $C_1-C_4$  alkoxycarbonyl group, a bis( $C_1-C_4$  alkoxycarbonyl)methyl group, an acetyl( $C_1-C_4$  alkoxycarbonyl)methyl group, a cyano group, a carboxy group, an azide group, a hydroxy group, a halogen atom or a radical of formula  $C_nF_mH_o$ , whereby  $n = 1, 2, 3$  or  $4$ ,  $m > 1$  and  $m+o=2n+1$

for long-term antiandrogen therapy for androgen-dependent diseases.

11. Use according to claim 10, wherein the testosterone derivatives are used for long-term therapy for prostate cancer.

12. Use according to claim 10 or 11, wherein the testosterone derivatives that are described in more detail in Claims 2 to 9 are used.

13. Pharmaceutical agents that contain at least one testosterone derivative of general formula I according to claims

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1 to 9 and physiologically compatible adjuvants and/or vehicles  
that are commonly used in galenicals.

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